

20 Cents

THE FORESTER

Vol. VII

JANUARY, 1901

No. 1

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THE PLATFORM OF THE FORESTER

In order that the good will of its readers may become as effective as possible in aiding to solve our present forest problems, the FORESTER indicates five directions in which an effective advance is chiefly needed.

1. The forest work of the United States Government which is now being carried on by the Department of Agriculture, the General Land Office, and the Geological Survey conjointly, should be completely and formally unified. The division of authority between the three offices involves great waste, and consolidation is directly and emphatically pointed to by the present voluntary co-operation between them.

2. A system of forest management under the administration of trained foresters should be introduced into the national and state forest reserves and parks.

3. Laws for the protection of the forests against fire and trespass should be adapted to the needs of each region and supported by the provisions and appropriations necessary for their rigorous enforcement.

4. Taxation of forest lands should be regulated so that it will encourage not forest destruction but conservative forest management.

5. The attention of owners of woodlands should be directed to forestry and to the possibilities of applying better methods of forest management.

Persons asking themselves how they can best serve the cause of forestry will here find lines of work suggested, along which every effort will tell. No opportunity for doing good along these lines should be neglected.

Notable Articles in Recent Numbers of the Forester.

The Proposed Appalachian National Park, by J. A. HOLMES, State Geologist of North Carolina, July, 1900.

Forest Law in the United States, by TREADWELL CLEVELAND, JR., July, Aug., Sept. and Oct., 1900.

The Proposed Minnesota National Park, by JOHN S. COOPER, Dec., 1900.

Four Articles on the Forest Problems of the White Pine North, Nov., 1900.

Copies of the Forester containing the above articles 10 cents, July number, 25 cents.

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WANTED: Back Numbers of the Forester.

From 15 cents to \$1.00 apiece will be paid for copies of the following:

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Proceedings of the American Forestry Congress and American Forestry Association (1888-1897, inclusive), 1.00





BEACH UNDER OAK IN THE SPESSART.

(See article on page 11.)

THE FORESTER.

VOL. VII.

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THE NINETEENTH ANNUAL MEETING.

I. Minutes of the Meeting and Resolutions.

THE American Forestry Association held its nineteenth annual meeting on December 12 and 13, 1900, at Metzerott Hall, Washington, D. C. The morning session was called to order on Wednesday, the 12th, at 10 o'clock, but owing to the fact that the day was a legal holiday, in honor of the hundredth anniversary of the establishment of the seat of National Government at Washington, an adjournment was immediately taken to Thursday, the 13th.

MORNING SESSION.

On Thursday morning at 10 o'clock, the Association was called to order in Metzerott Hall, 1110 F St., N. W., by Hon. James Wilson, the President.

The minutes of the last annual meeting were read and approved.

The report of the treasurer was read and referred to the Auditing Committee.

On motion of F. H. Newell, seconded by Mr. Pinchot, the treasurer was authorized to drop from the rolls those members who are two years in arrears of dues, after making one further effort to collect said dues.

The chair then announced the appointment of the following committees: On Resolutions, Dr. B. E. Fernow, Mr. E. A. Bowers, Prof. H. S. Graves; On Nominations, Col. Wm. F. Fox, Mr. George P. Whittlesey and Mr. Otto J. J. Luebker; On Auditing, Prof. J. A. Holmes and Mr. F. H. Newell.

President Wilson then called Dr. Fernow

to the chair and stated that he was obliged to withdraw on account of other important business. He congratulated the Association on the present interest in forestry, which is greater than he had ever observed before. Congress is more friendly towards efforts to rehabilitate the country from the effects of the work of vandals who have spared no tree. We hear nothing but encouragement everywhere. The colleges that have been interested and are now teaching young men forestry are preparing for the future. The speaker thought there will be no difficulty whatever in taking care of the forests as soon as the young men now being instructed are ready for their life work. In the meantime every effort must be made to impress the public with the work we have in hand. Such time as he can possibly give is always at the disposal of the Association.

Dr. Fernow gracefully thanked the President for his encouraging remarks.

Mr. Pinchot then read the report of the Board of Directors, which was approved and accepted. (See page 4.)

On motion of Professor Holmes, the recommendations of the Board were referred to the Committee on Resolutions.

Mr. Whittlesey presented to the Association the recommendation of the Board that a new grade of members, to be called sustaining members, be instituted, who should pay annual dues of \$25, and that the fee for life members be raised to \$100, and for patrons to \$1000. Mr. Newell advocated the changes proposed, but thought that \$500 would be a better fee for patrons. He described the mode in which the National Irrigation Society has

increased its membership, and recommended that the Forestry Association work along some such lines. On motion of Mr. F. V. Coville, the matter was referred to the committee on resolutions.

The proposal of the Board of Directors that the subscription price of the *Forester* be raised to \$2, except to libraries and exchanges, was also discussed, and referred back to the Board for such action as they might deem best.

The treasurer called attention to the large increase in membership, in spite of the fact that the balance on hand is only a few dollars larger than a year ago. He explained that it cost very nearly the first year's dues to get a new member, since only about eight per cent. of those invited to join actually become members. Next year the increase in receipts from the 600 new members will be apparent.

An adjournment was then taken until two o'clock, P. M.

AFTERNOON SESSION.

Mr. Bowers reported for the committee on resolutions, the following resolutions and recommendations:

1. *Resolved*, That the Association earnestly urges the passage of a bill creating a National Park of the famous Calaveras Grove of the Big Trees of California, as the necessary first step towards the preservation of a unique example of tree growth that has interested naturalists and tourists throughout the world, and we recommend that a sufficient appropriation be made in such bill to purchase all property rights in these lands in order to prevent the destruction of the Big Trees, and that there be made also sufficient annual appropriation for their protection against fire and for their proper care.

2. *Resolved*, That we favor the early passage of the joint resolution now pending in Congress for the appointment of a Commission to investigate and report on the practicability of establishing the proposed National Park in Minnesota, due regard being had to the treaty rights of the Indians affected by the creation of such park.

3. *Resolved*, That the action of Con-

gress in making an appropriation to investigate the forest conditions of the Southern Appalachian mountains meets with our cordial approval, and that we recommend that further steps be taken for the creation by purchase of a National Appalachian Park in the high mountain region of the States of North and South Carolina, Georgia and Tennessee.

4. *Resolved*, That we again urge the resolution passed at our last annual meeting for the consolidation under one department of the forest work now carried on by different branches of the Federal Government.

5. *Resolved*, That we express our satisfaction in the formation of an active Forestry Association in Canada, covering the entire Dominion, and hope that the efforts of our sister Association in securing an improved forestry system on the Crown lands of the Provinces and in awakening an interest in forestry will have a speedy success.

6. *Resolved*, That the Association extends its hearty thanks to Mrs. L. Z. Leiter for her courteous and highly appreciated invitation to her house on the afternoon of December 13th.

7. Your committee recommends: That Article III., Section 2, of the By-laws be amended by inserting after the words "Life Members" the words "Sustaining Members"; that section 3 be amended by striking out the words "one hundred dollars" and substituting the words "one thousand dollars"; also striking out the words "fifty dollars" and substituting the words "one hundred dollars"; also inserting after the sentence "Patrons and Life Members shall not be liable for annual dues" the words "Sustaining members shall be those who pay annual dues of twenty-five dollars."

That Article IV. be amended by inserting in line two after the word "President" the words "a First Vice-President."

(These articles thus amended would read:—

Article III. Sec. 2. Members shall be divided into five classes: Patrons, Life Members, Sustaining Members, Active Members, Associate Members and Honorary Members.

Sec. 3. Any person contributing at one time the sum of one thousand dollars (\$1000) to the permanent fund of the Association shall be a Patron. Any person may become a life member by the payment of one hundred dollars (\$100) at one time. Patrons and Life Members shall not be liable for annual dues. Sustaining Members shall be those who pay annual dues of twenty-five dollars (\$25). Active Members are those who pay the annual dues of two dollars (\$2). Associate Members are the members of any local Forestry Association which shall vote to affiliate itself with the American Forestry Association, under such rules as the Board of Directors may adopt. Honorary Members shall be the officers of State, Territorial, Provincial, or other forestry associations, or the delegates from such associations, or the delegates of any government.

Article IV., Sec. 1. The officers of this Association shall be a Board of Directors, a President, a First Vice-President, a Vice-President for each State, Territory and Province represented in the association, a Treasurer, a Recording Secretary and a Corresponding Secretary.)

The report was accepted.

Gen. C. C. Andrews, Fire Warden of Minnesota, explained at some length the proposed National Park in Minnesota, laying especial stress on the fact that the rights of the Indians will not be disturbed. The Congressional commission of investigation will be appointed as soon as the bill passes the House. The opposition of one member is blocking the way but, it will undoubtedly be withdrawn after full explanation in regard to the points on which he is raising objection.

Professor Holmes stated that the action of the last Congress in making an appropriation for investigating the Appalachian Park project had resulted in a report soon to be presented to Congress. He thought the fact that some five hundred newspapers are favorably disposed to all forest work is an evidence of the widespread interest in the subject.

On motion of Professor Holmes, the resolutions were adopted as reported.

Col. Fox, for the committee on nomina-

tions, reported the list of officers for the ensuing year, and on motion, the secretary cast the ballot for the names as read.

The following officers were elected:

President, Hon. JAMES WILSON, Secretary of Agriculture.
First Vice-President, Dr. B. E. FERNOW, Ithaca, N. Y.
Corresponding Secretary, F. H. NEWELL, Washington, D. C.
Recording Secretary, J. P. WHITTLESEY, Washington, D. C.
Treasurer, OTTO J. J. LUEBKERT, Washington, D. C.

DIRECTORS.

JAMES WILSON, E. A. BOWERS, F. V. COVILLE, B. E. FERNOW, HENRY GANNETT, H. S. GRAVES, ARNOLD HAGUE, F. H. NEWELL, GIFFORD PINCHOT, T. F. WALSH, G. P. WHITTLESEY.

VICE-PRESIDENTS.

SIR H. G. JOLY DE LOTBINIERE, Victoria, B. C. Quebec.
 C. C. GEORGESON, Sitka, Alaska.
 D. M. RIORDAN, Flagstaff, Ariz.
 T. C. MCRAE, Prescott, Ark.
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 H. D. MICHELSEN, Denver, Colo.
 ARTHUR T. HADLEY, New Haven, Conn.
 WM. M. CANBY, Wilmington, Del.
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 R. B. REPPARD, Savannah, Ga.
 J. M. COULTER, Chicago, Ill.
 JAMES TROOP, Lafayette, Ind.
 T. H. MACBRIDE, Iowa City, Iowa.
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 C. F. BESSEY, Lincoln, Neb.
 JOHN GIFFORD, Princeton, N. J.
 E. F. HOBART, Santa Fe, N. M.
 W. A. WADSWORTH, Genesee, N. Y.
 J. A. HOLMES, Raleigh, N. C.
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 T. T. WRIGHT, Nashville, Tenn.
 W. GOODRICH JONES, Temple, Texas.
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 D. O. NOURSE, Blacksburg, Va.
 ADDISON G. FOSTER, Tacoma, Wash.
 A. D. HOPKINS, Morgantown, W. Va.
 ELWOOD MEAD, Cheyenne, Wyo.
 T. F. WALSH, Washington, D. C.

E. STEWART, Ottawa, Ontario.
 WILLIAM LITTLE, Montreal, Quebec.
 GEO. P. AHERN, Manila, P. I.
 GEORGE CARTER, Hawaii.

Professor Holmes, for the auditing committee, submitted the following report of its examination of the treasurer's accounts: "The Auditing Committee begs to report to the Association that it has examined the vouchers and accounts of the Treasurer, and approves the same.

"Your Committee also approves the plan of keeping the vouchers and books adopted by the Treasurer, which is the same as that in use for several years past, except that it finds no easy way of checking or verifying the entries of the Treasurer concerning the amounts paid to him in the form of membership fees, or the amounts turned over to him from THE FORESTER. (Signed: F. H. Newell, J. A. Holmes.)"

In explanation of the criticism contained in the report, Mr. Newell stated that the system was as good as any he knew of, but he hoped that we might have the best one possible. The treasurer stated that the card system has been adopted during the past year, owing to the great increase in the number of individual accounts. The chair suggested that it might be well for the Board of Directors to give the accounts a preliminary auditing before the annual meeting. (For the Treasurer's Report see page 10.)

Mr. Newell read a telegram from Prof. F. W. Taylor, Superintendent of Forestry, Pan American Exposition, regretting his inability to be present. Also a letter of regrets from Dr. N. H. Egleston.

Prof. Henry Ferguson, of Hartford, Conn., brought to the American Forestry Association the welcome greetings of the Connecticut Forestry Association.

Mr. Elihu Stewart, Chief Inspector of Timber and Forestry for Canada, stated that the formation of the Canadian Association resulted from his visit to this Association last year. He conveyed the thanks of the Canadian Association for the very great assistance this Association has rendered it. He referred to the increasing interest in forestry throughout the Dominion,

and invited this Association to the coming meeting of the Canadian Association in March. He explained at some length the system of fire patrol which he is endeavoring to extend throughout the forests of Canada. The chair reminded the members that one of the early meetings of this Association took place in Canada, and that it was at that meeting that the idea of a systematic fire patrol was formulated.

The annual meeting then adjourned.

At five o'clock the Association was graciously received by Mrs. L. Z. Leiter at her house on New Hampshire avenue.

In the evening, Mr. Gifford Pinchot entertained the Association at his residence on Rhode Island avenue. Dr. Merriam, Chief of the Biological Survey, showed and explained a large number of colored lantern slides made from pictures taken by the Harriman Expedition.

II. Report of the Board of Directors.

The Board of Directors presents the following report of the year's progress in matters relating to forestry:

The thing which is conspicuous above all others in the development of the last year is the growth and spread of popular interest in the questions which concern the country's forests and in forestry. This has come out most clearly in the correspondence of the Association, in experiences and conversations which its members have had in all parts of the country, and especially in the public press. In the East and in California the interest has shown itself conspicuously in the activity of forest associations, and other organizations which have allied themselves with their work. Throughout the Rocky Mountain region there are few associations to give expression to this interest, but it has none the less made itself apparent in the tone of the press and in utterances at public meetings of various sorts.

In the plains region this increasing interest has been notable. The number of applications for planting plans and for working plans which have been received by the Department of Agriculture and the

numerous additions to this Association's membership indicate the practical way in which the country is taking up forestry. That the interest has everywhere ceased to be chiefly sentimental is shown most clearly by the number of students now registered in the three forest schools. At Cornell there are twenty-four, four of them seniors; at Biltmore there are nine; at Yale, where the new forest school was started in October under the most favorable circumstances with Prof. Henry S. Graves at its head and Prof. J. W. Toumey as assistant professor, there are seven.

This summer there have also been between sixty and seventy student assistants at work in the field under the Division of Forestry. The applications for the position reached the large total of 232.

During the past year a new national reserve has been set aside by presidential proclamation—the Crow Creek Forest Reserve in Wyoming, containing about 86 square miles. The Olympic

Forest Reserve in Washington has been cut down by 360 square miles; the area thrown open to settlement being chiefly in the northwestern corner of the Reserve where there were already a large number of private holdings. The Bighorn Reserve of Wyoming has been increased by the addition of 83 square miles on the southwest and southeast sides of the Reserve.

A long advance toward a proper management of the public forests has been marked by the request of the Secretary of the Interior made to the Department of Agriculture last spring, for the preparation of working plans for all of the national reserves. The area for which working plans have thus been requested is so large in proportion to the Department's all too small resources for forest work that it has only been possible to begin the work in a few places this year. It has, however, been possible to make the summer's surveys cover fully the Black Hills Forest Reserve where the conditions, for a tract of over one million acres, are unusually favorable for forest management. Preliminary examinations for future working plans have

also been made in the Lewis and Clark Reserve in Montana; the San Bernardino and Sierra Reserves in California; the Prescott, San Francisco Mountains and Black Mesa Reserves in Arizona, and the Bighorn Reserve in Wyoming. Thus this year has seen the first step toward conservative lumbering in the National Forest Reserves.

The investigation of the grazing question, which is also being made by the Department of Agriculture at the request of the Secretary of the Interior, has been prosecuted in fifteen reserves.

During the last year the important and successful work of the Geological Survey in surveying and mapping the National Re-

Forest Work on the Public Lands.

erves has been continued, and full reports and maps covering the Pike's Peak, Plum Creek, South Platte, Battlement Mesa, and White River Plateau Reserves in Colorado; the San Gabriel, San Bernardino, and San Jacinto Reserves in Southern California; and the Flathead and Bitter Root Reserves in Montana and Wyoming, have been published. Further statistics about the timber resources of Washington have also appeared. Examinations and surveys of the forested and burnt-over lands of northern Minnesota have been completed and reports are now in press. The surveys of the Olympic Reserve in Washington have been completed and the country between the Washington Reserve, and the Mt. Rainier Forest Reserve has been surveyed. In California surveys have been made in the northern Sierras, and the forest survey of the Sierra Reserve has been nearly finished.

The work of the Hydrographic Division of the Geological Survey has in several places touched the forest interests of the country more closely than usual. In the Adirondacks the forest work of the Division of Forestry is being combined with the work of the Hydrographer, in the interests of the flow of water in the streams, and of the maintenance of the lake levels. In the Appalachian park region, the hydrographic surveys have similarly been conducted in close coöperation with what is more strictly forest work.

The administrative force which under the direction of the General Land Office, has charge of the National Forest Reserves, has been better organized than heretofore. This branch of the Government forest service is, however, like the others, much handicapped by lack of funds.

The work of the Division of Forestry of the Department of Agriculture has continued to grow rapidly in extent and use-

The Division of Forestry. fulness. The Division's appropriation was practically doubled for the

fiscal year beginning on July 1st. It is now \$88,520 instead of \$48,520, as during the previous year. This means that the Division has been able to meet much more efficiently than before the demands which have been made on it. The request for working plans for conservative lumbering now cover more than 51,000,000 acres; and on 175,000 acres working plans have already gone into operation. The advance in the practical application of forestry to American conditions thus indicated is a matter of congratulation for two reasons. It means that object lessons in forest management, which will appeal more strongly than could anything else to lumbermen, owners of wood-lots, and State governments, are being established in different parts of the country. It also signifies that forestry is being fitted to American conditions, and that those who practice it in this country are gaining the experience which will enable them to solve more and more of our difficulties, and to get down to the terms which appeal to practical land owners. The Division of Forestry has also been carrying on many lines of work which are more in the character of investigation, but of the results of which it will soon be possible to make practical use. Such are the examination of the effects of forest cover on the flow of streams which has begun on the watershed of the Arrowhead Irrigation Company of Southern California, and the investigations of the habits of reproduction and growth of such important lumber trees as the Red Fir of Washington and Oregon, and the Redwood of California.

One of the most important pieces of work which has been undertaken by the Division of Forestry during the year, is

Working Plans for the Adirondacks.

the preparation of working plans for the New York State Forest Preserve. The part for which the first working plan is being made is Township 40, in Hamilton Co., containing the well known Racquette Lake. Before this working plan goes into operation however, the constitutional provision which forbids any cutting whatsoever on the State lands, will have to be repealed. It would be hard to measure the good results which would follow the frank introduction of scientific forestry on New York's public lands. In the Adirondacks the Division has also been engaged in making working plans for Townships 16 and 17 in Franklin County, belonging to Mr. William Rockefeller, and has continued to supervise the work of practical forestry on the Webb and Whitney Preserves and on the Brandeth Park.

In March, Governor Roosevelt appointed a new Forest, Fish and Game Commission with Mr. W. Austin Wadsworth at its head. Colonel William F. Fox was re-appointed as Superintendent of Forests. The Commission has added about eighty thousand acres, both to the Adirondack Park and to the State Forest Preserve.

The work of the Cornell School of Forestry on its 30,000 acre experimental tract has progressed rapidly. An arrangement was made according to which everything down to sticks three feet in length can be marketed for cooperage stock or wood alcohol. This greatly facilitates the utilization of the hard woods. Several burnt over tracts have already been cleaned up and planted.

The progress which has been made in Pennsylvania may be summarized in a quotation from Dr. Rothrock's last report:

Progress in Pennsylvania. "Up to the commencement of 1900 much of the work done has pertained to what might be called the period of agitation of the cause of forestry. It was necessary before our people could be induced to enter upon a new work that

they should be convinced that it was necessary. This has been accomplished, and the task now before us is to begin the practical work of restoration." Events which occurred last spring showed clearly that the people of the State understand that the forest reserves which are being established are for their benefit. There were many fires in the territory adjacent to these reservations, but though they did a great deal of damage to private property, the lands belonging to the State were largely protected by the voluntary efforts of the neighbors. Somewhat over one hundred thousand acres have now been secured for the State forest reserves. The year has further been instructive in the matter of the enforcement of the fire law. The regular detective machinery in certain counties has been employed successfully for the discovery of those guilty of setting fires, and convictions have followed.

In Minnesota, Wisconsin and Michigan the difficulties of the past years have been largely those of arousing public interest.

In the Lake States.

In great measure owing to the work of the forest officers and State associations in these States, there is now noticeably more interest in forest conservation, the question of taxing cut-over lands, etc., than there was a year ago. The Minnesota fire law has worked fully as well as conditions would permit. Meanwhile forest officers in Michigan and Minnesota, and the associations and individuals who, though private citizens, are active in forest matters in all these States, have gained knowledge and experience of the difficulties with which they must deal and of the ways in which it is possible or impossible to cope with them, which will enable them to bring forward much more definite and feasible programs than heretofore. Considering that legislation is one of the first things which is to be looked for in these States, this is of the utmost importance. In this connection the good work of the Women's Clubs in both Minnesota and Michigan deserves mention.

The history of the last twelve months in the tree planting region of the Middle West may best be spoken of in connection

with the tree planting work of the Division of Forestry. Planting plans have been

In the Plain Region.

prepared for fifty-nine land owners in eleven States. The farmers of the treeless regions have never been slow to appreciate the value of artificial plantations, but they have had little reliable knowledge or advice to guide them in their efforts. This year the reports which have been received from these States have almost always mentioned the very lively interest of the land owners in tree planting work. A great deal of printed matter has been circulated, both among the farmers and through the columns of newspapers and agricultural journals, and the tree planters of the division have given many public lectures.

The law which practically exempts bona fide tree plantations from taxation in Indiana has worked well wherever people

To the Local Press.

have known of its existence. Last April twenty-eight land owners had taken advantage of the law in one county; but in many parts of the State people are still unaware that such a law has been passed. Here is work for the local press.

A pamphlet entitled "The Boa Constrictor of the White Mountains" which appeared during the summer, has served

New Hampshire.

to attract attention more widely than anything else which has been published, to the poor condition of New Hampshire's forests. The evil which this pamphlet attacks would appear to be a case involving the trust question first of all, but the trouble is none the less close to the forest interests of the State, and as the welfare of New Hampshire depends fully as much as that of any other State, and more than that of most, on wisdom and farsightedness in the use of her forests, it is to be hoped that her citizens will soon bring themselves to the point of action. In this connection the excellent work of Governor Rollins deserves special mention.

In Massachusetts the State fire warden law, which was drawn up by the State Forestry Association over a year ago, went into force last spring. This law seems to have

worked well, both in the protection of trees along roadways and in the education of public opinion in regard to the value and proper care of trees.

The different state forestry associations throughout the country have on the whole been very active during the last twelve

The State Forestry Associations.

months; notably so in Massachusetts, Pennsylvania, Indiana and California. In Massachusetts the State association has devoted much time and effort to aiding the newly created tree wardens in the performance of their new duties. The Pennsylvania Association has gone on with its educational work as steadily and wisely as heretofore. In Indiana the State association sent its secretary, Mr. John P. Brown, through many of the Western States to examine tree plantations with especial reference to Catalpa, and to the tree-planting undertakings of railroads. In California the State Forest and Water Society, the Los Angeles County Forest and Water Association and other organizations have been carrying on the campaign for irrigation and forest preservation with such system, enthusiasm and success that it is probable that a thorough and careful legislative program, which they will present to the State legislature this winter, will be adopted.

The American Forestry Association has reason to be gratified at the successful session of the National Irrigation Congress

The Irrigation Congress.

which was held in Chicago in November. Several officers and members of this association played an important part in the proceedings of the Congress, and the interests of the two organizations are as closely allied as the motto of the session "Save the forests and store the floods," would indicate.

Canada's interest in forestry has always been great and during the last year a notable proof of it has been the formation of

The Canadian Association.

two forest Associations in the Dominion. One of these, the Canadian Forestry Association already numbers nearly two hundred members and is growing rapidly. It has adopted as its official

organ a monthly magazine published in Montreal.—*Rod and Gun in Canada.*

The International Congress of Silviculture met in Paris in June. The American delegates to the Congress were Messrs. Wm. A. Taylor, Wiener Weimberger and Tarleton H. Bean. The Congress lasted three days and was well attended. A number of interesting and valuable papers were read; Resolutions were passed favoring among other things: the publication of statistics showing the extent of the forest resources and of the consumption of wood in each country; the adoption of grazing laws, and the study of grazing conditions in each country; the establishment in each country of an arbor day, such as that now commonly observed in the United States; the formation of an international understanding for the protection of existing forests and the reforestation of waste lands.

The American Forestry Association held but one meeting this year; that in New York on June 24th and 25th, when

The American Forestry Association.

it met in affiliation with the American Association for the Advancement of Science. This meeting was well attended, and a number of very interesting papers were read and discussed. They were enumerated by title in the FORESTER for July, and since then some of them have appeared in the magazine. Several resolutions were adopted. One of the most encouraging features of the meeting was the way in which its proceedings were reported by the press, not only in New York, but throughout the country even to the Pacific coast. The tone of these reports and of the editorial comments which sometimes accompanied them, showed not only that the Forestry Association is widely recognized as an organization deserving public consideration and support, but that the press in many States is decidedly more interested in forestry than it used to be.

In April the FORESTER passed into the charge of Mr. Henry James 2d, under whose control it has made the greatest

progress of its history. **The Forester.** Mr. Stauffer generously continued to give his time to the magazine

for a couple of weeks after the new editor's arrival. Besides the members of the Association the magazine now goes to about thirty subscribers and to two hundred libraries and exchanges. During the last months the issues have been somewhat larger than during the first part of the year and proportionally more costly. The expense has been more than off-set, however, by the increase in the Association's membership.

The literature which appears in the *FORESTER* has been distributed outside of the Association as far as has been possible. But chiefly for lack of funds this cannot be done to nearly the extent that is desirable, or even necessary. The magazine now prints every month many pages of matter which is intended expressly to inform untechnical readers about forestry and our forest problems. For this to reach such a comparatively small audience as at present is a misfortune and a great waste of opportunities. Fifteen hundred dollars a year might easily and well be spent in the dissemination of reading matter which the Association is already printing. But this amount is still wanting.

The increase of membership has more than doubled its rate during the last year, and the membership list is more than fifty per cent. larger than in 1899. In December, 1898, the Association had 892 members; last year the number had increased to 1,025; and now it is 1,559. Of these new members, 26 are members for life. The Association has no deficit this year.

In New York, Pennsylvania, and Massachusetts, and three or four other States the Association is already well represented. In others, however, its membership is still so small as to be quite insignificant. This should not be, and the members in such states as Minnesota, Illinois, and Colorado are urged to make every effort they can to increase the membership in their states. The difficulty of doing this is simply the difficulty of getting at the people who would be glad to join. That many such

are to be found on every hand can no longer be doubted.

During the last year the Association has missed no opportunity of aiding and furthering the success of projects which are in sympathy with its aims. It has given

Efforts in its express backing to such projects by resolutions, and the Future. it has also forwarded them

by circulating printed matter, and by bringing to their aid other organizations. This work has borne good fruit. The rapid and unmistakable spread of interest in forestry is due in a large measure to this Association. It has done work which the national and State governments could not have undertaken and has thus far accomplished more than many of its most sanguine members could have hoped. But there still remains so much for the Association to do, and to do so as quickly as possible, that the success of this last year is interesting chiefly as an encouragement to further and greater efforts in the future.

The Board of Directors takes this opportunity of urging once more the support of three projects of national importance

Recommendations. These are proposals to make national parks of the

Calaveras Grove of Big Trees in California, of a tract of land in the southern Appalachians, and of the Leech Lake region in northern Minnesota. The Calaveras Grove, the finest and most interesting of all Sequoia groves, is now owned by a lumberman, who, unless the grove is purchased this year by Congress, will begin to fell the trees. In the proposed Appalachian Park region in North Carolina seven men from the Geological Survey and the Division of Forestry have been making surveys and examinations throughout the summer and fall, and their reports are in preparation. The Minnesota Park plan is now in the shape of a resolution for the appointment of a Congressional committee of investigation. It is very important that this resolution should not be left till the end of the session when other questions could easily be made to take precedence over it.

III. Treasurer's Report.

The Treasurer submitted the following report for the year ending November 30, 1900. Otto J. J. Luebker, Treasurer, in account with the American Forestry Association.

DR.		CR.	
To balance, December 1, 1899	\$ 616.05	By printing FORESTER	\$1031.39
Dues	1915.85	Salaries of editors	937.48
Life memberships	1050.00	Expenditures of FORESTER office	
Donations	121.00	(postage, printing, express, etc.)	160.35
Sale of proceedings	65.25	Cuts for FORESTER	93.65
Subscriptions and sale of FORESTER	142.08	Expenditures of Secretary (postage,	
Advertising	229.12	printing, stationery, cards, etc.) .	531.10
Interest on bonds	125.00	Clerk hire (for FORESTER, Secretary	
Interest on deposits	14.15	and Treasurer)	373.95
Sale of shelving and "junk." . . .	12.43	Salary of Treasurer	70.00
Sale of 2 U. S. 5's	2265.00	Sundry expenditures of Treasurer .	42.10
Loan (Union Trust and Storage		Expenditures for summer meeting,	
Company)	1000.00	June 25 and 26, New York City .	152.02
		Interest on loan, and revenue stamps	50.14
		Rent for FORESTER office	36.26
		Binding	14.50
		Check books	4.00
		Made good a bad check	2.00
		Refund on overpayment	2.25
		Janitor services	3.18
		Purchase of typewriter	103.75
		Brokerage (exchange of bonds) . .	5.00
		Two Ch. and E. Ill. bonds	2305.00
		Payment of loan (Hibbs)	1000.00
			\$6918.12
		By Balance	637.81
			\$7555.93
	\$7555.93		

Unpaid dues to the amount of \$1,738 are still outstanding for the last three years, namely, for 1900, \$944; for 1899, \$544, and for 1898, \$150. Allowing \$400 of this amount as bad debts, and about \$300 for unpaid bills, this would leave a balance of \$1,038. Adding this amount to the balance for the year ending November 30, 1900, which is \$637.81, would make a total of \$1,675.81, or a net balance of \$675.81, after deducting the \$1,000 loan.

The Association owns two Chicago and Eastern Illinois 5% series 1937 bonds.

One of these has been deposited as security for a loan of \$1,000, which was made in 1899, and continued during the past financial year of the Association. These bonds were bought in compliance with the instructions of a committee appointed by the Board of Directors to dispose of the U. S. Coupon 5's (which are now being called in by the Secretary of the Treasury), and to reinvest the proceeds.

Respectfully submitted,

OTTO J. J. LUEBKERT,
Treasurer.

November 30, 1900.

STUDY IN EUROPE FOR AMERICAN FOREST STUDENTS.

BY OVERTON W. PRICE.

Superintendent of Working Plans, Division of Forestry.

THE training necessary for an American forester has not yet been fixed by hard and fast lines. The necessity, however, for a man to map out his course and to supply his deficiencies largely on his own responsibility has disappeared with the establishment of American forest schools. They have already done much to set a high standard for technical training and thereby to hasten greatly the sound development of forestry in this country. With the creation of opportunities for systematic study at home, it is natural for the forest student to jump to the comfortable conclusion that study abroad is no longer essential. He soon becomes aware also of the familiar fact that European forest methods can rarely be applied without modification here, and this may seem to him to remove all practical advantage from studying them on the ground. He sees, too, that there are now fewer trained men in this country to supply the need for foresters than there are likely to be in the future, and he naturally wants to get his start with as little loss of time as possible.

It is true that there are few European forest methods which we can use entirely without modification. It is also true that European methods have been rich in suggestion in the application of practical forestry to American forests. The American forest student who puts aside a chance to see forestry in Europe makes the same sort of mistake that a medical student would be guilty of, who ignored an opportunity to walk the best hospitals. The work which falls to a forester here requires of him a more comprehensive grasp of his profession than is needed where forestry is already established upon a firm footing. In Europe, forest management, in order to be successful, has only to follow those methods which have been proved advisable. In this country, the forester must depend for the most part upon his own

ability to make the most of forest problems. And since he has but few patterns to follow at home, it would seem that the more he knows of the practice and development of forestry abroad, the better equipped will he be for his work.

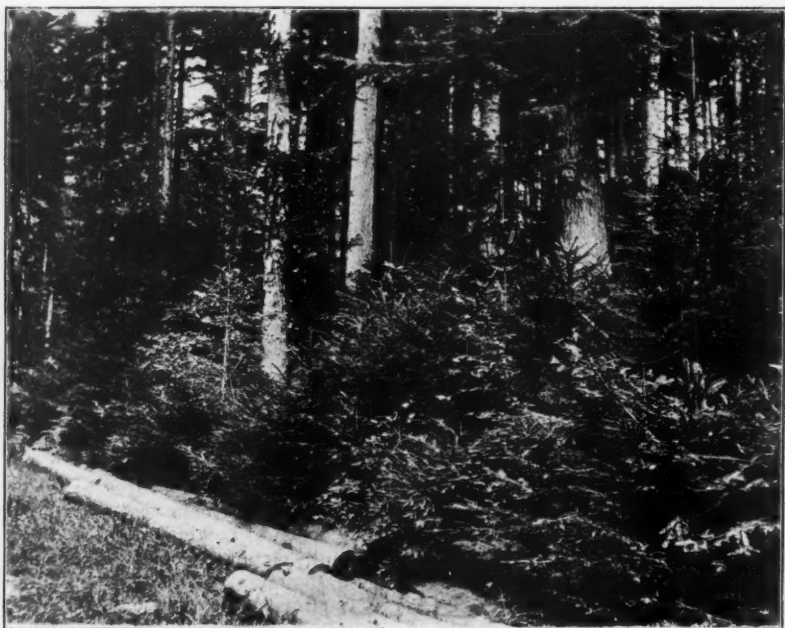
Three questions are likely to present themselves to the forest student who has decided to supplement in Europe the course of study which he has followed here: where to go; how long to stay, and the probable cost of the undertaking.

Those who have been well grounded at a forest school and have seen something of American forests and American lumbering, can gain much from a year abroad. Those who wish to follow to the end a particular line of investigation may use two or three years to advantage, but for the usual purpose of the forest student, one year will suffice. The right man, equipped with a good knowledge of German and a carefully considered plan of campaign, can gain something from a six months' stay. It requires, however, a thorough preparatory knowledge of European forest conditions, to lend practical benefit to a shorter trip. The disadvantage for the forest student of flying trips to Europe can scarcely be put too strongly.

The forest student, with one year abroad at his disposal, will probably find it advisable to spend the first one or two months, according to his requirements, on one range under an English-speaking forest officer. This will enable him to brush up his German without loss of time, and steady work in the same place for a month or more will give him the insight into European forestry which he needs, much better than would the same period spent in a cursory inspection of several ranges. English speaking forest officers are rare in Europe. The Uehlingen range in the Southern Black Forest, under the charge of Oberförster Jäger, has been the starting point for several American students,

and it would be difficult to find one more favorably situated or a forest officer with a happier faculty for making matters clear to the beginner. While at Uehlingen the

will do well to see something of Swiss forests before he turns northward. The Sihlwald, town forest of Zurich, deservedly famous for its Beech forests and the excel-



Photograph taken by T. H. Sherrard.

NATURAL REPRODUCTION OF SILVER FIR—BLACK FOREST.

student will have a chance to acquaint himself thoroughly with the Baden working plan method, which, of the several in force in the German States, is the simplest, the broadest, and the least unsuited to American forest conditions. Uehlingen is within easy reach of several instructive ranges, among which are Waldshut, St. Blasien, and Wolfsboden. The Waldshut range in the foothills of the Schwarzwald, where the vineyards of the Rhine valley give way first to coppice woods and then to high forests of Beech and Oak, forms a strong contrast in type and management to Wolfsboden and St. Blasien, both mountain ranges stocked chiefly with Silver Fir and Spruce.

His term at Uehlingen ended, the student

lence of its management, is full of interest and of practical hints. There are records of its systematic management since 1417. It is the only range in Europe in which all its own forest produce is worked up. It has a sawmill, lathes for turning tool handles, a plant for impregnating paving blocks and telegraph poles and machines for the shaping and bundling of fuel. No raw material is sold. The Sihlwald contains also a most ingenious and labor-saving system of timber slides, firewood slides, and forest railways.

The town forest of Winterthur does not contain many features from the study of which Americans can give direct practical benefit. It is instructive, however, in showing what exceedingly favorable local

conditions can do in shaping the management of a forest. The well-stocked Winterthur forests, which begin within a stone's throw of the town, have produced a revenue of \$10 per acre per annum for the last thirty years. They are managed with almost the same care that we give to a garden, because through their nearness to an excellent market the value of firewood and timber exceeds enormously the cost of raising them.

Whether the student sees something of forest management in the Swiss Alps, or in those of Bavaria or the Tyrol, will depend upon the best economy of his time. It is preferable that he should see it in Switzerland, where the preservation of the forests of the higher mountains is of vital

valleys, that an urgent and successful public appeal was made to the Government to take their management into its own hands.

On his way northward from Switzerland, the student will do well to see some ranges of the middle and northern Schwarzwald. Of the former, Staufen is the best known. It is the largest range in Baden, and the management of its mountain forests is particularly instructive. Of the latter, the ranges of Baden-Baden, Wolfach, and Herrenwies are representative. Wolfach, an excellent example of the selection system, is full of suggestion for American foresters.

It is but a short distance into Bavaria from the northern Black Forest. Bavaria is rich in forests and presents a very wide



Photograph taken by T. H. Sherrard.

PURE STAND OF MATURE SILVER FIR—BLACK FOREST.

importance. It was in Switzerland, that reckless lumbering of the mountain forests resulted in such serious damage from landslides and avalanches to farms in the Alpine

range of local conditions. The Spessart is well known and teaches forcible lessons in silviculture and national economy. It has been thought best to describe this forest

district at some length since no American student abroad will fail to see it, while its form of management may be of some interest to those who confine their studies to this country.

The Spessart which is situated in the northwestern portion of Bavaria covers an area of about 115,000 acres. There are few forests of the same size, the wholesale lumbering of which would realize so enormous a profit. The stand is chiefly Beech and Oak, many of the latter 400 years old, with a diameter of three feet or more and a clear length of sixty feet—certainly the finest Oak in Europe and sometimes equalled, but seldom excelled, by the White Oak of our Southern and Middle States. One can walk for hours in this district among Oak worth from fifty to two hundred dollars a tree and the total value of this timber in the Spessart is estimated at nearly one million dollars.

Bavaria is not a wealthy kingdom. Wars and enforced preparation for war, a generally unfruitful soil, the extravagances of the royal house, and, especially in the South, an idle and pleasure-loving peasantry, have all led to poverty. Under the careful husbandry of the present ruler, Luitpold, Prince Regent, much has been done to improve matters and especially to remove the heavy load of debt laid upon the people by the vagaries of the unhappy King Ludwig II. However, Bavaria is not yet in such a position that the presence of an additional million of dollars in the treasury would be a matter of little importance. In view of this, her conservative management of the wealth of the Spessart is all the more praiseworthy.

The villages in the valleys of the Spessart and upon the outskirts of the forest owe their existence to the wood-working industries, which are the natural consequence of the presence of so large a body of marketable timber. There are several saw mills where the Oak and Beech are cut up, but the chief industry is the manufacture of oaken staves for wine casks, which find ready sale in the valleys of the Main and the Rhine. Of the peasantry of the Spessart and its environments, very few are not connected in one way or

another with the manufacture of lumber or staves or in getting out the raw material, while the great majority are directly dependent upon these sources of labor for their daily bread. If the Bavarian government therefore, were to authorize the cutting of all marketable timber in this district, without regard to the maintenance of a sustained annual yield, a large number of people would soon be thrown out of employment and great suffering would inevitably result. To realize fully how severe this suffering would be, would entail upon the reader some study of the Bavarian peasant and the economic and social conditions under which he lives. His tools, his mode of life and his education differ but little from those of his ancestors, and his language is scarcely intelligible to his own countrymen of a better class. To such a man, the power to grapple with new conditions, to seek a fresh home and other means of employment, is denied. And even were this not the case, Germany, where the supply of labor exceeds the demand, in practically all the trades and especially in the case of common labor, offers a poor field to those in search of work.

To lumber on the principle of a sustained annual yield, or in other words to take out of a forest in one year the quantity of wood which has actually been produced in that year, is the basis of forest management in Germany, because it has there been found to yield better returns upon the capital invested in the forest than any other form of management. If the sanctioned annual yield, and no more, be harvested each year, the forest will, under proper care, continue to produce the sanctioned annual yield for ever, just as a good investment continues to produce its annual interest. If the sanctioned annual yield be utilized with close regard to the silvicultural requirements of the forest, it will increase in proportion with the improvement in the condition of the forest as a whole. There are cases, however, among which is the Spessart, where the utilization of the sanctioned annual yield alone, may not prove immediately the best financial policy. This is sometimes the result of local eco-

conomic conditions, but more often of the condition of the forest itself. The Spessart, from the standpoint of the forester, is not in good order. Its old Oaks and Beeches are still of high value, but many of them long ago passed their maturity. To leave them standing, is to incur loss from two sources: from the decay of the timber they contain; and because the space they occupy in the forest might be filled by sound healthy young trees, producing wood of good quality at a comparatively rapid rate. The best silvicultural measure would be, to remove, as soon as possible, all these Oaks and Beeches which have passed their maturity, without regard to the limit prescribed by the sanctioned annual yield. Then, after the forest has been put in good condition, by these "improvement cuttings," further utilization might be based upon its actual production, without danger of this production being in a measure offset by the presence, in the forest, of trees, which are not only growing exceedingly slowly, but many of which are losing rapidly in value through decay. However, in the Spessart, in order to continue to provide the peasants of the neighborhood with material for their sawmills and for the manufacture of staves, it is necessary to cut upon exceedingly conservative lines. The Oak of this region is divided into three well-defined classes, in point of age: Class I comprises Oak of about 400 years old. Class II, Oak 250 years old, and Class III, Oak 100 years old. In order, therefore, to maintain a sustained annual yield, Classes I and II, both of which are merchantable timber, must be removed slowly enough to allow Class III to be ready for the market by the time the removal of Classes I and II is effected.

Since the Oak is the more desirable tree in the Spessart, producing timber of high value while the Beech as a species suitable only for firewood is subordinate in importance, the first object of the management is the raising of merchantable Oak timber of as good a quality and in as short a time as possible. The Oak being a tree exceedingly intolerant of shade, has not the power of forming the dense mature stands characteristic of trees strongly

tolerant of shade, as for example the Adirondack Spruce. In the case of pure woods of Spruce, the struggle for existence is prolonged indefinitely and the stand remains dense to a great age, because each tree which helps to form it, possesses the inherent power to endure excessive and long continued shade with but little detriment beyond decrease in its rate of growth. With the Spessart Oak, the case is different. The tree needs so much light, that it soon succumbs to suppression. The struggle for existence is consequently short, the stand thins out rapidly through the death of over-topped trees and becomes sparse and open at an early age. This may not seem to be a matter of much importance. It is, however, a source of so much difficulty, that it has rendered the raising of Oak timber in pure woods impossible in Germany. Not only does it prevent, by the formation of an insufficient, scanty stand, the full utilization of the space it occupies, but also results in the reproduction of short, branchy trunks and knotty defective timber. One of the most incontrovertible of silvicultural laws establishes the impossibility of raising timber of good quality in a wood which has been open from an early age. For the production of long, cylindrical trunks free from branches, trees must have light from above, but as little side light as possible.

Realizing that it would be impossible to grow Oak timber in pure Oak woods, the Bavarian foresters had to find some other means of growing it. They turned to nature, and they found that Oak does not occur pure in the Spessart, but scattered in small groups and single trees among the Beech. They saw that the Oaks growing in this way were tall and straight, clean boled and cylindrical, and finer upon the whole than any Oak they had seen elsewhere. They noticed also that the Oaks were everywhere older than the Beech, with their crowns well above the leaf cover of the latter and forming what is called a "two-storied forest," the Oak above and the Beech below.

It was evident that "the Oak must have its head in the light and its feet in the shade," and that growing singly and in

groups in dense stands of Beech, with its crown well above the general canopy, enjoying the full influence of the sunshine with its trunk shaded by the Beech around it, conditions were suited to its development. In other words it was clear that the Beech served as a nurse for the Oak, forcing it to grow towards the light and admitting that light only from above, with tall cylindrical trees, excellently adapted to use as timber, as the result. Incidentally also, Beech was seen to serve still another purpose, in shading the ground and covering it with its heavy leaf litter, thereby adding greatly to the moisture and fertility of the forest floor. To systematize a method of management easy of application, embodying the good features of nature's method without involving the same prodigal use of time, was the problem. If no attempt had been made to perpetuate the two-storied forest of Beech and Oak, it might certainly have continued to occur naturally, as in the past. To trust entirely to chance, however, in the perpetuation of a valuable timber tree, would not have been good forestry in the case of a species handicapped by infrequent seed years, strong demands upon light and a rate of growth so much slower than that of the Beech as to render it constantly liable to be choked out by the latter. In order to counteract these difficulties, the following plan was adopted:

Spots seldom more than a fraction of an acre in extent, suited especially to the Oak, were selected in mature Beech forest. These were cut clean of the Beech which covered them and sown broadcast with acorns. After four or five years when the young Oaks had obtained a start sufficient to enable them to hold their own against the faster growing Beech, the Beech wood surrounding the Oak groups was reproduced by natural means; that is, successive cuttings were made in it, by which the light necessary to the germination and growth of Beech seedlings was admitted to the soil, and after these had become established in sufficient quantity, the old Beech wood was gradually removed, allowing a young wood of Beech to take its

place. At the same time, many young Beech sprung up in the Oak groups as well as around them, and the final result was exactly what had been desired—a two-storied forest with the Oak above and the Beech below. This system has been adopted permanently and every year fresh blanks are cut in the Beech woods and sown with acorns, thereby insuring to Spessart peasants of future generations an ample supply of the same fine Oak timber that the present generation is enjoying.

It may occur to the reader that although the conservative system of management adopted by the Bavarian government for the forests of the Spessart may contain some instructive features in view of the interests at stake, the silvicultural treatment of the Oak contains no hints of practical value for the management of American forests. It is true that so intricate a method involving large expense and much technical skill for its application, is justified in the Spessart only because the value of land and timber render it profitable. It is also true that such conditions do not yet exist generally in America. But because a system cannot be adopted as it stands, it does not follow that some modification of it may not be employed where opportunity arises. The Spessart does not illustrate merely how Oak may be grown successfully in mixture with Beech. It teaches broad principles of silviculture and proves the value of close observation. It was the study of these forests that induced Sir Dietrich Brandis, late Inspector General of Forests in India, to adopt in 1850 a similar system in Burma for the raising of Teak in mixture with Bamboo, the Teak forming the overwood and the Bamboo the underwood; a system which has served as a source of large annual revenue to the British crown. In our own northern woods we find the Hemlock and Pine associated in the same way as are the Spessart Beech and Oak, and in various parts of the United States other species form analogous cases, where nature points the way towards the best means of growing the local timber tree.

(To be continued.)

The Forester,

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AND

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All contributions and communications should be addressed to the EDITOR,

202 14th Street, S. W., Washington, D. C.

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Vol. VII. JANUARY, 1901. No. 1.

Amendments to the Constitution of the A. F. A.

The attention of the FORESTER's readers is called to the amendments to the Constitution of the American Forestry Association which were passed at the annual meeting in December. The last year has shown both that the Association can spend to good purpose much more money than it has had heretofore, and that there are many persons who are able and glad to give more to the Association than the old schedule of dues asked. For this reason a new one has been adopted. The regular membership fee of two dollars remains unchanged in this schedule, but on the other hand, the one dollar subscription to the FORESTER has been abolished, and single copies are to be sold hereafter for twenty cents each. In other words, those who wish to receive the magazine from now on must become members of the Association.

The Western Hemlock.

At a time when a prominent feature of the Eastern lumber situation is the problematical condition of the Hemlock market, the first organized attempt to rescue the Western species from obscurity and to give it a place among high-grade timbers, is being made. Government in-

vestigations have been begun and the press has been made the agent for circulating information about the merits of the Western Hemlock throughout the country.

Notwithstanding its excellence for many uses, this wood has heretofore been almost unrecognized and wholly without place in the market. This has been partly because Red Fir was so cheap that there was no incentive to use Hemlock, but the chief reason has been its unfortunate name. Although different and better in almost every respect, it has been condemned without trial on the reputation of its Eastern relative.

The difficulty of using it is a serious factor in the Northwestern lumber situation and results in a large annual loss. In the States of Oregon and Washington Hemlock makes up nearly thirteen per cent. of the standing timber. Seldom occurring in pure stands, it grows together with Red Fir and other merchantable species. The result is that after logging it is left standing and almost invariably is destroyed by fire, wind, or insects. Were it possible to save it until it becomes valuable, the question would be less serious.

As a timber tree, the chief fault of the Western Hemlock is its variability. Normally it is light, rather hard, straight-grained, tough and usually white. In points of strength, ease of working, and freedom from warp, or windshake, it is especially unlike the Eastern species. It is very light and tasteless, and therefore adapted for box material. It makes a handsome finishing wood, and is strong enough for ordinary building purposes. As pulp wood it is said to be superior to the Eastern species, but is not white enough to be used in any mills but those employing the chemical processes. It has proved satisfactory for woodenware stock, and in this form and as box wood it is already sold to some extent under the alias of Spruce.

It is true that though it possesses these qualities when at its best, Western Hemlock is liable to many defects. The heartwood is frequently discolored, fungous diseases produce what are known as "black

knots," and the lumber is often nearly ruined by "black streak," the result of the work of an insect which injures the wood beneath the bark. The scar is buried by subsequent growth of wood and appears when the log is sawed as a bitter black streak an inch or more long. But these drawbacks are not universal and doubtless when the influence of locality is better known they may be largely avoided. Until the timber is well introduced, its friends will do well to grade carefully; but grading, and the avoidance of certain localities in cutting, should be all that is necessary to make the Western Hemlock marketable. Its recognition on its worth and the possibility of selling it openly for the many purposes for which it is admirably adapted, would result not only in certain wood industries being supplied with material more cheaply than at present, but in saving much standing Fir and Spruce as well as Hemlock. For now to meet the demand which the wasted Hemlock might satisfy, Fir and Spruce lumber are used.

Derelict Lands. The "Royal Commission on Forestry Protection in Ontario" in the course of its report (reviewed on p. 26) says: "No forest lands should be left derelict. When a licensee has practically abandoned his holding by failing to pay his ground rent, the Government should resume possession and begin active management of the territory with a view of protecting future growth." About six-sevenths of the land in Ontario is still owned by the Crown and even in the case of the ten million acres which are under license to lumbermen the Government retains the ultimate control of the land. In this happy situation it is easy to speak of the Government's resuming active management when the land is left derelict, and the condition of things in Ontario when compared to that in our own Lake States looks delightfully simple. And yet the contrast is not really as great as it first appears to be. The lands which have been cleared of all merchantable lumber in Michigan, Wisconsin and Min-

nesota, and which have been left by their owners to be bought back, as it were, by the State, through the accumulation of unpaid taxes, are as completely derelict as anything could be. Lumbering in these regions is now followed chiefly by forest fires, waste of young forest growth, exhaustion of the soil, and interference with the flow of the streams—none of which evils are necessary—and the States, though private owners may hold the titles to the land, are largely responsible for this. They are also greatly interested in having the lands kept permanently under forest and, therefore, in acting one way or the other—in resuming possession of the lumbered areas or in making it possible for those who have cut off the first crop to hold their lands for the second.

There is no use blinking this fact any longer. Now that the forest servants of these States, unofficial or publicly charged with forest investigations, are coming forward with definite proposals, it is the duty of the State Legislatures to give them its attention and to take action on their suggestions.

The Last Fifteen Years.

The century which has just run out came so near to slipping away entirely without seeing any approach to forestry or to an avowal of the communities' interest in forest conservation in this country, that to review it from the point of view of the forester would be to hunt far for very small game. It is true that forest laws and attempts at what might be called constructive forest management have been on record for more than a century, but only those of the last decade or decade and a-half have much value or significance. Yet the importance of some of these is such that the 20th century will hardly be able to estimate it fairly.

The establishment of the National Forest Reserves, of forest reserves and parks in some States, and the passage of laws for the protection of forest lands against fire and for the encouragement of forest cultivation in others, are but well-meaning beginnings. But when one considers to

what an extent cheap wood has entered as a factor into our prosperity, into the opening and settlement of the West, and into our rapid industrial development, no one can doubt that they are the beginnings of what may be great things. Little by little the best of the slowly grown forests of northern New England, of Pennsylvania, of Michigan, Wisconsin, and a good part of Minnesota, have been cut off, and now the lumbermen are yearly working their way deeper into the woods of the Appalachians of the southern timber belt, and of the far West. Often the land which has been

cleared has been turned into farms, frequently it has been left to be burned by fires, only in a few places and but recently has it been held and managed for a second crop. Future generations will probably have cause to look back to the movement, of which the setting aside of the forest reserves has been perhaps the most conspicuous event, as one of the important chapters in the industrial history of the country. Though these have thus far been only a beginning, the site on which the twentieth century can erect a splendid edifice has been secured.

CORRESPONDENCE.

Dr. Schenck's Business Problems of American Forestry.

BILTMORE, N. C., Dec. 20, 1900.

EDITOR OF THE FORESTER:

Dear Sir: A recent issue of THE FORESTER in reviewing my booklet, "Some Business Problems of American Forestry," questions the reliability of the data forming the basis of my financial demonstrations.

Since 1897 I have been in the habit of collecting financial data published in lumber papers and obtained by correspondence with leading lumbermen, with the view of using them in my annual lectures on forest finance. The seventeen problems given in "Some Business Problems of American Forestry" are taken from my collection. The following list specifies the authority on which the premises of each problem relies.

1. A Longleaf Pine Problem (Florida): Personal investigation made in southern Pine belt for the Division of Forestry and correspondence with a Florida lumberman.

2. Another Longleaf Pine Problem (Florida): The same source.

3. A Red Fir problem (Oregon): After clippings from *Northwestern Lumberman*.

4. A Yellow Poplar Problem (North Carolina): My own timber tallies and my

essay entitled "Our Yellow Poplar," copy of which I send you under separate cover.

5. Another Yellow Poplar Problem (North Carolina): My own tallies made for property in my charge.

6. An Adirondack Problem: After Pinchot, Graves, and clippings from lumber periodicals, mixed with personal impressions.

7. A Spruce Problem: From the same as No. 6.

8. Another Spruce Problem: From the same as No. 6.

9. A White Pine Problem (Minnesota): Pinchot and Fernow's publications on White Pine interwoven with data received from a correspondent at Duluth.

10. A Shortleaf Pine Problem (Arkansas): After my own investigations into the growth of Shortleaf Pine and footing on data furnished by a correspondent in Arkansas.

11. Influence of Forest Fires on Rate of Interest: My own experience based upon five and a-half years constant contact with nature in the region referred to.

12. Stumpage Prices of the Future: After Gannet and Fernow.

13. Forest Taxation in the United States: Data from a correspondent in Massachusetts.

14. Influence of taxes on Business Forestry: As before.

15. A National Park Problem (Minnesota): After personal investigations in Northern Minnesota and conversations with several Minnesota lumbermen.

16. State Loans for Forestry Purposes (Pennsylvania): Using data which actually refer to property well-known to me.

17. Weeding and Road-Building: After Pinchot, Graves, and personal experience.

In conclusion I beg to say that none of the lumber papers reviewing my booklet has found my premises inconsistent with the facts prevailing in the world of lumber regions.

Very respectfully,

C. A. SCHENCK.

[We see nothing in Dr. Schenck's statement of his sources of information to change our belief that many of his problems are based on premises which are so far

from representing the real condition of things that there remains little to the problems except arithmetic. *The North Western Lumberman* may have recorded the selling of Red Fir for forty cents an acre more than once. But this does not warrant the assumption that 100,000 acres of "splendid Douglas Fir" could recently have been bought for any such price even in the backwoods of Oregon. As for the examples which are based on Dr. Schenck's own investigations, we can only point out that the fact that the investigations are Dr. Schenck's does not exempt his employment of their results from criticism. What we said of the fourth problem in the November FORESTER was "—generalizations like those made on page 10 would be unsafe even if based on thousands of measurements." One of the most important tables in *Our Yellow Poplar* is based on stem analyses of only twenty trees.—Ed.]

NEWS, NOTES, AND COMMENT.

Land given to State Board of Forestry.

Under the terms of the law, entitled, "An act to encourage the growing and preservation of forests, and to create forest boards and forest reserves, and to appropriate money therefore," ex-Governor John S. Pillsbury, of Minnesota, has presented the State Board of Forestry with the title to 1,000 acres of cut-over land in Cass County. The only condition which limits the use of this land is that the University of Minnesota shall be made the beneficiary of two-thirds of all the income which may be derived from it. This is the first time that the law providing for such donations to the State, passed by the State Legislature of 1899, has been taken advantage of. In his letter to forest boards ex-governor Pillsbury "reserved the right to add to this gift other lands from time to time, whenever he may see fit, all additions to be considered as one gift."

"Worthless Land" and Forest Destruction.

In the *Michigan Tradesman* (Grand Rapids) for December 12th appeared an article by F. E. Skeels entitled "The Forestry Problem: Its Solution from a Forestry Standpoint." In the course of this article Mr. Skeels said:

"In the General Tax Law of 1893 certain provisions are made by which the Auditor General was to deed to the State certain lands, which then became subject to entry as tax homesteads. There is one clause of this law that has created much comment and no little censure: Without giving more of the Act than is necessary to explain this feature, we find, in Section 127: 'It becomes the duty of the Auditor General and Commissioner of the State Land Office, to cause an examination of lands delinquent for taxes in certain townships, and if it shall appear that said lands are barren, swamp or worthless lands and have been abandoned by the owner, then

the Auditor General is authorized to make a transfer, by deed to the State,' etc. The State, in its desire to settle the northern counties, has offered these lands to actual settlers at ten cents per acre, exempting the settler from taxes, except upon improvements, for the first five years, at the end of which time the State gives a deed. To the people who were looking for homes, cheap homes, this was an alluring bait. To the timber thieves it was a bonanza. Let us, for a moment, return to one clause of this law as passed, 'If it shall appear that said lands are barren, swampy or worthless and have been abandoned by the owner.' Then the homesteader can find a home. Ye gods! what beneficence is this, what charity, what philanthropy does this great Commonwealth deal out when she takes a man already so poor that he 'hath not where to lay his head' and palms off on him 'barren, swampy, or worthless land' at \$4 per forty, takes him and his family from friends and kindred, places him on this miserable tract of land which has already, perhaps, starved out some one else and leaves him to eke out a wretched existence and, if he subsists at all, to rear his family in ignorance, for if he pays no taxes he can have no schools or highways! Is it not of more interest to use these lands for the purpose for which they were adapted than for the State to pauperize a portion of its population or to offer such inducements for people to come here from other States. I make the assertion that 90 per cent. of the tax homesteads taken up are complete failures, as homes. The 10 per cent. who are able to stay on their claims have found land that is not 'barren' or 'worthless' or are enabled to earn a living by work in the woods or mills. More than 50 per cent. are taken by men who never intend to occupy and but for the timber that may be growing on the land would not make application. Many never erect any sort of building at all, but remove and sell all valuable timber before the time to prove up. Others erect a rough 8x10 log hut, put in an old stove and a table of rough boards and, with this 'bluff' as a residence, proceed to cut and

remove the timber. Many lumber firms furnish the cash for these entries for the purpose of getting the timber. (Others, original owners, claim that the State's title is not good and boldly proceed to take the timber, second growth, from lands on which they have refused to pay taxes for from ten to twenty years.) By virtue of this Act the State of Michigan is not only alluring a certain class of her population to a state of bankruptcy, but she is also tempting and making it possible for another class to commit crime by perjury and false pretense by entering claims for these lands. Would it not be of more and better interest to the State to use these abandoned lands for the purpose for which they are adapted, the growing of timber, rather than for the questionable purposes stated?"

"In a journey across almost any portion of this district (The Lower Peninsula) we find deserted farms with the remains of good buildings and fences, abandoned and going to decay. If we trace up the original owners and enquire as to the cause of these apparent failures we find in almost every case that ordinary farm crops and the hardier fruits were successfully grown until some large tract of timber was cut that had stood near enough to afford a wind break. After the cutting, the winds blew all crops out of the ground or became veritable sand-blasts that mowed down the grain and ruined the fruit. It is probable that every member of this Society fully understands the value of a timber wind-break and the chances for success or failure that would be probable on a sand-plain farm, or on farm lands in the vicinity of such plains, where no timber growth prevents the sand-laden wind from cutting down everything in its path. We have as good agricultural lands in Northern Michigan as can be found anywhere else in the State, or in any other State, and, with the protection offered by tracts of timber, the efforts of farmers and fruit growers are generally successful. It is of vast interest to the State to aid these industries, and it can be done in no better way than by converting these 'barren, swampy or worthless' lands into vast forest areas."

Farm Forestry in Massachusetts.

"Massachusetts has therefore made a good beginning in State forestry, but it is all purely of a protective nature. Inasmuch as we have no great timber area like that in New York, there is no reason for the State to enter upon the cultivation of commercial timber. The application of this branch of forestry should be left in this State to private enterprise; and it is safe to predict that, if our own citizens do not undertake it, outside capital will eventually come in and begin operations. There is at least one such company established on Massachusetts territory to-day. It controls at present some 5,000 acres in one township, and is negotiating for the purchase of more. It has even been reported on good authority that they hope to buy the whole township. Primarily this company was formed for the establishment of a game preserve; but it is known that they are already planning to start a forest, which they hope to make commercially valuable.

"Why not encourage such foreign capital to come in and do such work?' some one may ask. If they will consider the best interests of Massachusetts, it would surely be wise. But who wants to see acres of trees growing on land that is more valuable for agricultural crops? Forestry does not seek to ruin a country and turn it back from civilization to wilderness; the science of forestry is diametrically opposed to any such practice.

"Our problem in Massachusetts is to keep what we have, and to improve it; hold fast to our tillage, and grow good crops thereon; hold on to our wood lots, and improve them; and, finally, make those old barren pastures, too poor to keep a sheep alive, and those low places, too wet for grass, grow marketable wood of some kind.

"Let us see for a moment what our woodland represents to-day. By the last census, that of 1895, our wooded area is given as nearly 1,500,000 acres and its value as almost \$24,000,000. While this is a gain in woodland area in ten years of more than 71,000 acres, its valuation shows a

shrinkage of something over \$1,300,000 in the same period of time. In thirty years the value of our woodland has increased some \$440,000, and the acreage increase shows almost identically the same figures. Judging by the census returns, the character of our woodlands appears to have improved on the whole in the ten years from 1885 to 1895, but the depreciation in value of more than \$1,300,000 seems to indicate that further improvement is possible."—Allen Chamberlain on *Possibilities for Farm Forestry in Massachusetts*.

Canadian Interest in Forestry.

The Canadian Forestry Association which was founded last March is now well started, and is meeting with great favor throughout Canada. It already numbers more than 100 members, and almost every day new applications are received. There is no reason to doubt that as it becomes better known, it will grow into a very strong and influential association. It has adopted as its official organ a monthly magazine published in Montreal *Rod and Gun in Canada*, and an arrangement has been made according to which payment of the annual membership fee, one dollar, constitutes a subscription to this magazine. In each number there now appears a department devoted to forestry, several pages in length, which is edited by the Secretary of the Association, Mr. Elihu Stewart, Chief Inspector of Timber and Forestry.

The president of the Canadian Association, Sir Henri Joly de Lotbinière, who is also vice-president for Canada of the American Association, has recently been made Lieutenant-Governor for British Columbia. Since assuming office he has been as indefatigable as ever in forest matters, with the result that in British Columbia a provincial association has already been formed. On the other side of the continent at the opening of the Provincial Exhibition at Halifax a few weeks ago, the Hon. Mr. Jones, the new Lieutenant-Governor of Nova Scotia, devoted a considerable part of his address to the subject of forestry and made special refer-

ence to the aims of the Canadian Association.

Mr. Stewart is now making preparations for a visit through the prairie region of the Northwest with a view to holding meetings and explaining to the people the manner in which the government proposes to assist them in tree planting on the plains. In general the work will be carried on in such a way as to give instruction about tree planting with reference to the preparation of the soil, the proper time for planting, the varieties of trees suitable for certain localities, etc. In addition to this it is hoped that the government will be able to furnish seed and plant material to those applying for them, and also to see to their safe delivery at the proper time.

Increasing Value of Hemlock.

"It is stated that \$5 a thousand is being paid for hemlock logs at the mills in the western part of the northern peninsula of Michigan. Only a few years ago this would have been a fair price for Pine, and indicates both the increasing scarcity of Pine and the greater appreciation of the merits of Hemlock. The time seems to be fast coming when Hemlock will be the chief pieced stuff material of the West as it long has been in the East. Not only so, but it will be used for sheathing boards, sidewalk plank and similar purposes to a greater extent than ever before."—*American Lumberman*.

Will it Pay to Grow Forest Trees?

In a recent issue of the *New Orleans Lumber Trade Journal* appears an article by Mr. D. C. Burson, of Topeka, Kans., on the subject, "Will it pay to plant and cultivate forest trees?" The article pertains chiefly to the hardy Catalpa and describes the results already obtained in some of the larger plantations of the West. The writer quotes from the Division of Forestry in giving measurements in the plantation of L. W. Yaggy, near Hutchinson, Kans. This plantation shows a net average annual return of \$19.75 per acre for the first ten

years of its existence. Upon the basis of past accomplishment Mr. Burson discusses the possibilities of the future, and shows clearly that the growing of timber for posts, telegraph poles, and railroad ties is a profitable business. The article is an able presentation of the case from the standpoint of one who understands the situation, and will make a strong impression on those who are thinking of planting trees for profit. In summing up, Mr. Burson says:

"Yes, it will not only pay to plant and cultivate Catalpa, but any other variety of forest tree whose lumber has a fair commercial value. * * * The facts are that we are unable to make any calculations on growing forest trees on good land that will not pay large dividends on the capital invested."

Practical Lumbermen Increasing.

"A second offset (to the dangers that threaten to extinguish the productiveness of forest lands in this country) is the widespread public interest above mentioned, which is beginning to become effective not only in legislation, but, and this is of far greater value, in leading to practical action by individual forest owners. 'Get rid of the timber' is no longer the unquestioned axiom that it was. To cut the timber and yet save the forest looms up as a clearer and clearer possibility in the minds of timber owners, and the examples of the practical lumbermen who are handling their forest lands along the lines of practical forestry are multiplying with most gratifying rapidity both in number and in force. It is thought the enlightened self-interest of the owners of timber land, even more than by legislation, or by the press, or by public sentiment itself, that our forests must actually be saved."—Gifford Pinchot in *Outing*.

Neglect of New England's Woodland.

"I think it is safe to say, that taking the three States, of Connecticut, Rhode Island and Massachusetts together and as a whole, more than one-third of their land is woodland, and in the

remaining three States of New England, taken together, very much more than one-half, probably two-thirds. It is also safe to say that eighty or ninety per cent. of all these woodlands receive practically no care at all, except that of sometimes trying to put out fires when they threaten other private property. *What other of the natural resources of New England is so neglected?*

"During most of our history and before railroads brought us in competition with the fertile and more easily tilled lands of the West, much land was cleared which is no longer profitable for agriculture. Most of this will reforest itself, when given a chance, and some of it is already growing into woodland. This is inevitable and it is advisable that land valuable as woodland than for agriculture should be allowed to again grow up with trees, but the new forest needs more care than it has heretofore received that it may be of greater value to the owner. The thrifty farmer tills his fields in such ways that he may not only have good crops this year, but that his farm be kept in good condition for future crops. Let him no longer cut over his woodland with little or no regard for its future crops. Hereafter, that will not be considered a thrifty way of doing business. Let us keep continually in mind the fact that well kept woodlands are of both direct and indirect uses to both the actual owner and to the community at large. Of the indirect uses, its relations to the water supply is perhaps the most obvious. We all know that our wells and streams have become more uncertain as the forests have been destroyed. This is so well known that many have come to believe that forests directly cause rain. It is possible that they do, to a slight extent, but their influence in this way is too little to amount to much. They are not the cause of rain, but they conserve the rain which falls. We have cut down many forests that once existed, but that is not the reason so little rain has fallen for the last three months, and yet that destruction is chiefly responsible for the low water in our reservoirs and streams and wells and springs in this drought now prevailing.

This part of the subject is a very important one for New England, with its many manufactures using water for power, and its growing cities looking for larger water supplies." Prof. Wm. H. Brewer before the Washington Co. (Conn.) Agricultural Society.

Root of the Hemlock.

"If one should make a study of the hemlock tree he would find that it does not grow well in ordinary clay, gravelly soil, or even loam, but that it thrives best when it is established in a piece of ground which is covered to some depth with decaying leaves and twigs. This decaying matter or humus is a wonderful substance, and makes up a world of life of its own. It teems with bacteria, is pierced in a thousand directions by the glistening white threads of the moulds, and is inhabited in the upper layers by the threads and colonies of green algae, and by the green protonemal threads of mosses and liverworts, all of which are busily engaged in breaking up the dead leaves and using their substances for food. Into this mass the hemlock sends its finer roots for the same purpose.

"The roots of the tree are not able to take up the substance of the decaying humus by reason of some unknown character in their structure, and unless they undergo some adaptation may not derive much food from the surface layer of soil in the forest. Since the tree cannot secure this valuable food by its own efforts it has entered into a partnership with the moulds and mushrooms which will enable it to do so. By this association the threads of the moulds and mushrooms unite with the roots to form what is known as mycorrhiza.

"If the tips of the roots of the hemlock are examined it will be seen that many of them are short, blunt, and club-shaped and that the branches are curiously clustered, but beyond this nothing can be found to indicate a partnership between these organs and moulds. If a thin slice be cut from the tip, however, and magnified fifty times under the microscope, it will be found that the root is completely enclosed

in a felt of hyphæ or threads of a mould or fungus, and that some of the cells of the root are penetrated by them. Great numbers of the threads run outward from this felt and ramify through the soil thickly in all directions. The decay products of the dead leaves are conducted through them into the felt and into the root where they are at the service of the tree, and are next led upward through its body, serving to build up its new tissues. This service of the fungus is repaid by the tree affording it a place to live, and also by giving back to it some of the products derived

from the soil which have been worked up into a form very suitable for the nourishment of the fungus. By this interesting method of coöperation the Hemlock and many other trees receive a large part of their nutrition, and do not reach normal size when deprived of it. The destruction of humus or dead leaves in a forest, therefore, cuts off the most important food supply of the trees, and if continued, will lead to starvation and the disappearance of the forest."—Sarah H. Harlow in the *Journal of the New York Botanical Garden*.

RECENT PUBLICATIONS.

The Annual Report of the Commissioner of the General Land Office, for the Fiscal Year ending June 30, 1900.

At last we may turn to the Commissioner's Report with reasonable assurance of finding besides figures and recommendations some account of actual work performed. The appropriation of \$300,000 which became available for the expenses of the Forest Service July 1, 1900, for the first time put the Department in a position to cope effectively with the work with which it has been legally charged, while a year's previous experience in forest administration was already to the credit of the force. The work of the past summer undoubtedly shows an appreciable if not a commensurate improvement. From July first there have been 9 superintendents, 39 supervisors, and 330 rangers, the number of the last having been increased July 15th, to 445 for a period of two months. It is obviously too soon to judge of the year as a whole, but it is to be hoped, as "it is confidently believed" by the Commissioner, "that with this increased force, and the possibility of retaining a sufficient force in localities where really needed for a longer period than was possible during the year for which this report is made, the results obtained along the whole line of forest-reserve administration will prove most satisfactory."

The organization of the reserve management has gone on in good part along the lines of mapping the reserves, of clearing out old trails, of blazing new ones, and of opening fire breaks.

The cost of the service for the year covered by the report is a fraction less than half a cent per acre, and reaches a total of \$201,636.08.

Regarding fires it appears that the rangers "discovered and extinguished 237 more camp fires than last year." What proportion this number bore to the total number of camp fires within their ranges, which they might have "discovered and extinguished," the report does

not say. Fires which gained considerable headway numbered 173 as against 223 of the preceding season. These fires burned about 70 acres each on the average, while those of the preceding season burned 233 acres on the average. The large devastating fires burned last year 50,680 acres and cost \$2,315; the preceding year they burned 79,500 acres and cost \$8,835. The Commissioner recommends the appropriation of an emergency fund of \$25,000 for the employment of extra assistance at fires.

Speaking of the Forest Reserves themselves, the Commissioner reports in substance as follows: There are now 38 Reserves, embracing an estimated area of 46,772,129 acres, of which only the included vacant public lands are actually reserved. The Prescott Reserve, in Arizona, was enlarged on the petition of numerous citizens of Yavapai county, because, under the liberty granted by an Act of June 3, 1878, which allows the free taking of timber from public mineral lands in Arizona, the timber adjacent to the original Prescott Reserve was being rapidly removed to supply large mining corporations, which could with a nominal increase of expense, get the wood just as conveniently from the San Francisco Mountains. The very disadvantageous working of the law above cited has already been emphatically noticed by a writer in these pages.* The Department has been insisting upon its repeal for over twenty years. The Big Horn Reserve has also been enlarged so as to make its boundaries coincide more closely with the natural limits of the forest area. The Olympic Reserve has been reduced in area 264,960 acres. This step may, as is claimed, have had some plausibility with reference to local interests. Unhappily, however,

* See THE FORESTER for July, 1900, page 158. T. Cleveland, Jr., "Forest Law in the United States."

we learn on good authority that the restored lands were rich in forest, and further that many "bona fide settlers"—by which in this case the employees of lumber companies are to be understood—have since taken advantage of the "lienland" law and appropriated most of these lands, leaving behind in the Reserve their original claims, which had been cleared, not so much for actual cultivation, as for all they were worth in timber.

This brings us to the Commissioner's recommendation regarding an amendment to the lienland law. The Commissioner believes that the difficulty can be overcome "by adding to the clause which permits such selections the following: *Provided*, That the natural state of the tract relinquished has not been changed except to such an extent as may have been necessary in clearing the land for actual cultivation." We do not agree with him. Such a provision is too loose, and could be readily evaded; for who is to judge what "may have been necessary," or what use will be made of the fresh selection?

Before considering the remaining recommendations contained in the report we must note an historical summary of forest legislation which is not written in such terms as to emphasize sufficiently the wholly inconsistent and seriously injurious position of the public land and Federal timber laws as they now stand in their totality.

Among the final recommendations we may notice here as particularly important those urging not less than the present appropriation of \$300,000 for the Forest Service; the enactment of a law empowering forest officers, special agents, and other officers having authority in relation to the public lands, to make arrests, without process in hand; the enactment of a general law "which shall repeal the numerous conflicting and undesirable existing statutes respecting timber on the unreserved lands. With regard to the second of these recommendations, it should, we think, be pointed out that arrests will not actually be made unless there is provision for the expenses which the officers must incur in the discharge of this duty, by bringing the offender to the nearest appropriate place of imprisonment and trial.

Report of the Royal Commission on Forest Protection in Ontario, 1899. Toronto, 1900. Pp. 29. Maps 1.

The province of Ontario comprises 142,000,000 acres of which 120,000,000 acres are still owned by the Crown. Much the greater part of the province is not under cultivation. It is either forested or more fit for the cultivation of timber than for anything else. Fourteen million acres are now under license to lumbermen but the land itself, after the licenses have expired, will still be under the control of the Government. The forest conditions in this region may be said to resemble roughly those in our own Lake States and in the Adirondacks.

This present report is a brief account of the

forest lands of Ontario, with statements of their value and importance to the country and recommendations regarding their management. It divides the provinces into three divisions: (1) The agricultural section along the St. Lawrence and south of the Georgian Bay; (2) The Laurentian or central section stretching from east to west at the north of this, and including some of the northern slope of the divide between the Great Lakes and Hudson Bay, and (3) The northern division comprising roughly the basin whose streams flow into the James Bay. Each of these divisions has peculiarities of its own which determine its interest in its forests. All these are considered in a careful and practical spirit. The summary of conclusions with which the report ends is as follows:

"1. A large portion of the central division of the province is more profitable from the standpoint of public revenue as forest land than under cultivation for farm crops, and as in addition to this it contains the headwaters of all our principal streams, all that part of this division found upon this examination to be not well adapted for farming should be added to the permanent Crown Forest Reserves.

"2. All licensed and unlicensed lands held by the Crown where tourists, lumbermen or prospectors are permitted should be patrolled by fire rangers, and these rangers should be controlled directly by the Government.

"3. Suitable regulations should be enforced to prevent too rapid or too close cutting upon lands under license.

"4. No license in arrears for ground rent should be renewed, but the territory if not suitable for agriculture should be added to the Forest Reserves.

"5. Fire notices in the English, French and Indian languages should be posted along the canoe routes throughout the territory north of the Height of Land.

"6. License holders should not be allowed to cut any trees for logs smaller than will measure twelve inches across the stump two feet from the ground, except by special permission from the Department of Crown Lands and under the supervision of the district fire ranger."

One of the most interesting parts of the report is the large map of the province by M. J. Butler, C.E., O.L.S., showing the distribution of the forest and, roughly, its character. The chapter of the report on "Forests and Rainfall," also by Mr. Butler, is not, as its title might imply, an abstract discussion of this much-worked topic, but a description of the different parts of the province and their geological features with considerations of the relation between the forests and the rainfall.

PUBLICATIONS RECEIVED.

The Protection of Shade Trees in Towns and Cities. Bulletin 131 of the Connecticut Agricultural Station. New Haven. Pp. 30. Illustrations 17.

"A Weekly Feast to Nourish Hungry Minds."—*N. Y. Evangelist.*

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"*The London Spectator*" remarks concerning Dr. Morrison's narrative of the siege:

The Times has at last received and published a full narrative from its correspondent, Dr. Morrison, of all that preceded and accompanied the siege of the Legations. Gibbon could not have told the story better. It is obviously impartial, full of detail, yet clear and consistent, and it has been accepted throughout the Continent as the history of that strange episode in the relations of Europe with Asia.

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